

AMENDMENTS TO THE CLAIMS

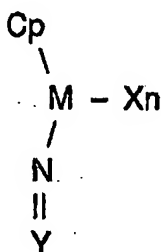
This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) Process for the preparation of a polymer comprising monomeric units of ethylene, an α -olefin and a vinyl norbornene applying as a catalyst system:

a. a bridged or an unbridged group 4 metal containing an unbridged catalyst having a single cyclopentadienyl ligand and a mono substituted nitrogen ligand, wherein said catalyst is defined by the formula I:

b. an aluminoxane activating compound,

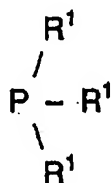
c. 0 - 0.20 mol per mol of the catalyst of a further activating compound,



Form. I.

wherein Y is selected from the group consisting of:

ai) a phosphorus substituent defined by the formula:



Form. II.

wherein each R^1 is independently selected from the group consisting of a hydrogen atom, a halogen atom C_{1-20} hydrocarbyl radicals which are unsubstituted by or further substituted by a halogen atom, a C_{1-8} alkoxy radical, a C_{6-10} aryl or aryloxy radical, an amido radical, a silyl radical of the formula:

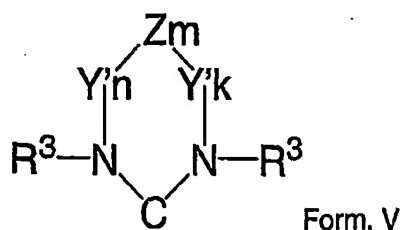


wherein each R^2 is independently selected from the group consisting of hydrogen, a C_{1-8} alkyl or alkoxy radical, C_{6-10} aryl or aryloxy radicals, and a germanyl radical of the formula:



wherein R^2 is independently selected from the group consisting of hydrogen, a C_{1-8} alkyl or alkoxy radical, C_{6-10} aryl or aryloxy radicals,

aii) a substituent defined by the formula:



wherein each of Y is $\text{C R}^3 \text{R}^3$, $\text{C}=\text{C R}^3 \text{R}^3$, $\text{C}=\text{N R}^3$, SiRR , $\text{C}=\text{O}$, N R^3 , P R^3 , O or S,

Z is $-\text{A}=\text{A}$, and each A is C R^3 , N or P,

each R^3 is independently selected from the group of hydrogen, hydrocarbyl radical, silyl radical according to form. III or germanyl radical according to form. IV,

k, m and n have independently the value 0, 1, 2 or 3, provided that $k + m + n > 0$ and

aiii) a substituent defined by the formula:



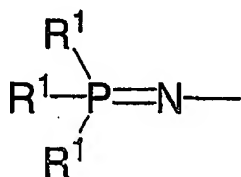
wherein each of Sub¹ and Sub² is independently selected from the group consisting of hydrocarbyls having from 1 to 20 carbon atoms, silyl groups, amido groups and phosphido groups.

Cp is a ligand selected from the group consisting of cyclopentadienyl, substituted cyclopentadienyl, indenyl, substituted indenyl, fluorenyl and substituted fluorenyl;

X is an activatable ligand and n is 1 or 2, depending upon the valence of M and the valence of X; and

M is a group 4 metal selected from the group consisting of titanium, hafnium and zirconium.

2. (original) Process according to of claim 1, wherein the catalyst used contains a phosphinimine ligand which is covalently bonded to the metal, defined by the formula:



Form. VII

wherein each R¹ is independently selected from the group consisting of a hydrogen atom, a halogen atom, C₁₋₂₀ hydrocarbyl radicals which are unsubstituted by or further substituted by a halogen atom, a C₁₋₈ alkoxy radical, a C₆₋₁₀ aryl or aryloxy radical, an amido radical, a silyl radical of the formula III and a germanyl radical of the formula IV.

3. (original) Process according to claim 2, wherein the catalyst comprises as phosphinimine ligand tri-(tertiary butyl) phosphinimine.

4. (currently amended) Process according to ~~any one of claims 1-3~~ claim 1, wherein the alumoxane used is of the formula: (R⁴)₂AlO(R⁴AlO)_mAl(R⁴)₂ wherein each R⁴ is independently selected from the group consisting of C₁₋₂₀ hydrocarbyl radicals and m is from 0 to 50.

5. (currently amended) Polymer obtainable by the process of ~~any one of claims 1-4~~ claim 1.

6. (original) Polymer according to claim 5, wherein

$[VNB] > 0.01$ and

$\Delta\delta > 30 - 15*[VNB]$, provided that $\Delta\delta$ is not negative,

$[VNB]$ is the content of vinyl norbornene in the polymer in weight % and

$\Delta\delta$ is, expressed in degrees, the difference between the phase angle δ at an angular frequency of 0.1 rad/s and the phase angle δ at an angular frequency of 100 rad/s, as measured by dynamic mechanical spectroscopy, at a temperature of 125°C.

7. (original) Polymer according to claim 6, wherein $\Delta\delta > 35 - 15*[VNB]$.

8. (currently amended) Polymer according to ~~any one of claims 5-7~~ claim 5, wherein the content of vinyl norbornene is between 0.1 and 4 weight %.

9. (currently amended) Polymer according to ~~any one of claims 5-8~~ claim 5, wherein the polymer comprises at least 0.01 weight % 5-ethylene-2-norbornene.

10. (currently amended) Polymer according to ~~any one of claims 5-9~~ claim 5, wherein $\Delta\delta > 25 - 12,5*(Q-2)$,

whereby $Q = M_w/M_n$, M_w is the weight average molecular weight and M_n is the number average molecular weight.